

AMENDMENTS TO THE CLAIMS

Claim 1 (currently amended): Solder pads for improving reliability of a package, the package
5 comprising a substrate, the solder pads with two sizes of diameters comprising:

a plurality of first solder pads positioned on a surface of the substrate to occupy the entire surface of the substrate except the corners, each of the first
10 solder pads having a first diameter; and

at least a second solder pad positioned on a corner region of the substrate surface; the second solder pad having a second diameter greater than the first diameter to sustain a stronger thermal stress and a stronger
15 fatigue strength.

Claim 2 (original): The solder pads of claim 1 wherein the substrate comprises a plastic substrate.

20 Claim 3 (original): The solder pads of claim 1 wherein the substrate comprises a ceramic substrate.

Claim 4 (original): The solder pads of claim 1 wherein the substrate comprises a printed circuit board (PCB).
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Claim 5 (original): The solder pads of claim 1 wherein the substrate comprises a chip.

Claim 6 (canceled)
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Claim 7 (currently amended): The solder pads of claim 1 wherein portions of the first solder pads are arranged

in a ~~matrix~~ rectangular array at a center region of the substrate.

Claim 8 (canceled)

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Claim 9 (previously presented): The solder pads of claim 1 wherein the corner region comprises the circumferences of a plurality of concentric circles on the substrate.

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Claim 10 (original): The solder pads of claim 9 wherein the second solder pads on each of the concentric circle circumferences are arranged with an equal interval.

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Claim 11 (previously presented): The solder pads of claim 1 wherein the corner region comprises the corners of the substrate on an outside portion of a maximum circle on the substrate.

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Claim 12 (previously presented): The solder pads of claim 1 wherein the corner region comprises the circumference of a maximum circle on the substrate.

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Claim 13 (previously presented): The solder pads of claim 1 wherein the corner region comprises at least a grounded solder pad.

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Claim 14 (original): The solder pads of claim 1 wherein each of the first solder pads and the second solder pad comprise a solder bump pad, the solder bump pad connecting to a solder bump and using the solder bump to connect to a chip.

Claim 15 (original): The solder pads of claim 14 wherein an underfill layer is filled in a gap between the chip and the substrate.

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Claim 16 (original): The solder pads of claim 1 wherein each of the first solder pads and the second solder pad comprise a solder ball pad, the solder ball pad connecting to a solder ball and using the solder ball to connect to a printed circuit board.

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Claim 17 (previously presented): Solder pads with two sizes of diameters comprising:

a substrate;

15 a plurality of first solder bump pads positioned on a first surface of the substrate, each of the first solder bump pads having a first diameter;

at least a second solder bump pad positioned on a first predetermined region of the first surface, the second solder bump pad having a second diameter greater than the first diameter, each of the first solder bump pads and the second solder bump pad being connected to a solder bump that is connected to a chip;

20 a plurality of first solder ball pads positioned on a second surface of the substrate, each of the first solder ball pads having a third diameter; and

at least a second solder ball pad positioned on a second corner region of the second surface, the second solder ball pad having a fourth diameter greater than the third diameter, each of the first solder ball pads and the second solder ball pad being connected to a solder ball that is connected to a printed circuit board.

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Claim 18 (original): The solder pads of claim 17 wherein the substrate comprises a plastic substrate.

- 5 Claim 19 (original): The solder pads of claim 17 wherein the substrate comprises a ceramic substrate.

- Claim 20 (original): The solder pads of claim 17 wherein the first predetermined region and the second
10 predetermined region comprise a high stress region.

Claim 21 (original): The solder pads of claim 17 wherein the first solder bump pads are arranged in a matrix at a center region of the substrate.

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Claim 22 (original): The solder pads of claim 17 wherein the first predetermined region comprises the corners on the first surface of the substrate.

- 20 Claim 23 (original): The solder pads of claim 17 wherein the first predetermined region comprises the circumferences of a plurality of concentric circles on the first surface.

- 25 Claim 24 (original): The solder pads of claim 23 wherein the second solder bump pads on each of the concentric circle circumferences are arranged with an equal interval.

- 30 Claim 25 (original): The solder pads of claim 17 wherein the first predetermined region comprises the corners of the substrate on an outside portion of a maximum

circle on the first surface.

Claim 26 (original): The solder pads of claim 17 wherein
the first predetermined region comprises the
5 circumference of a maximum circle on the first surface.

Claim 27 (canceled)

Claim 28 (original): The solder pads of claim 17 wherein
10 the first solder ball pads are arranged in a matrix
at a center region of the substrate.

Claim 29 (original): The solder pads of claim 17 wherein
the second predetermined region comprises the corners
15 on the second surface of the substrate.

Claim 30 (original): The solder pads of claim 17 wherein
the second predetermined region comprises the
circumferences of a plurality of concentric circles
20 on the second surface.

Claim 31 (original): The solder pads of claim 30 wherein
the second solder ball pads on each of the concentric
circle circumferences are arranged with an equal
25 interval.

Claim 32 (original): The solder pads of claim 17 wherein
the second predetermined region comprises the corners
of the substrate on an outside portion of a maximum
30 circle on the second surface.

Claim 33 (original): The solder pads of claim 17 wherein

the second predetermined region comprises the circumference of a maximum circle on the second surface.

Claim 34 (canceled)

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Claim 35 (new): The solder pads of claim 7 wherein portions of the first solder pads are arranged out of the rectangular array and adjacent to the second solder pad on the corner region.

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Claim 36 (new): Solder pads for improving reliability of a package, the package comprising a substrate, the solder pads comprising a plurality of first solder pads and a plurality of second solder pads arranged in a ring and positioned on the substrate, the second solder pads having a second diameter greater than a first diameter of the first solder pads, and the second solder pads being positioned only at corners of the substrate.

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20 Claim 37 (new): The solder pads of claim 36, further comprising a plurality of first solder pads positioned within the ring.

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